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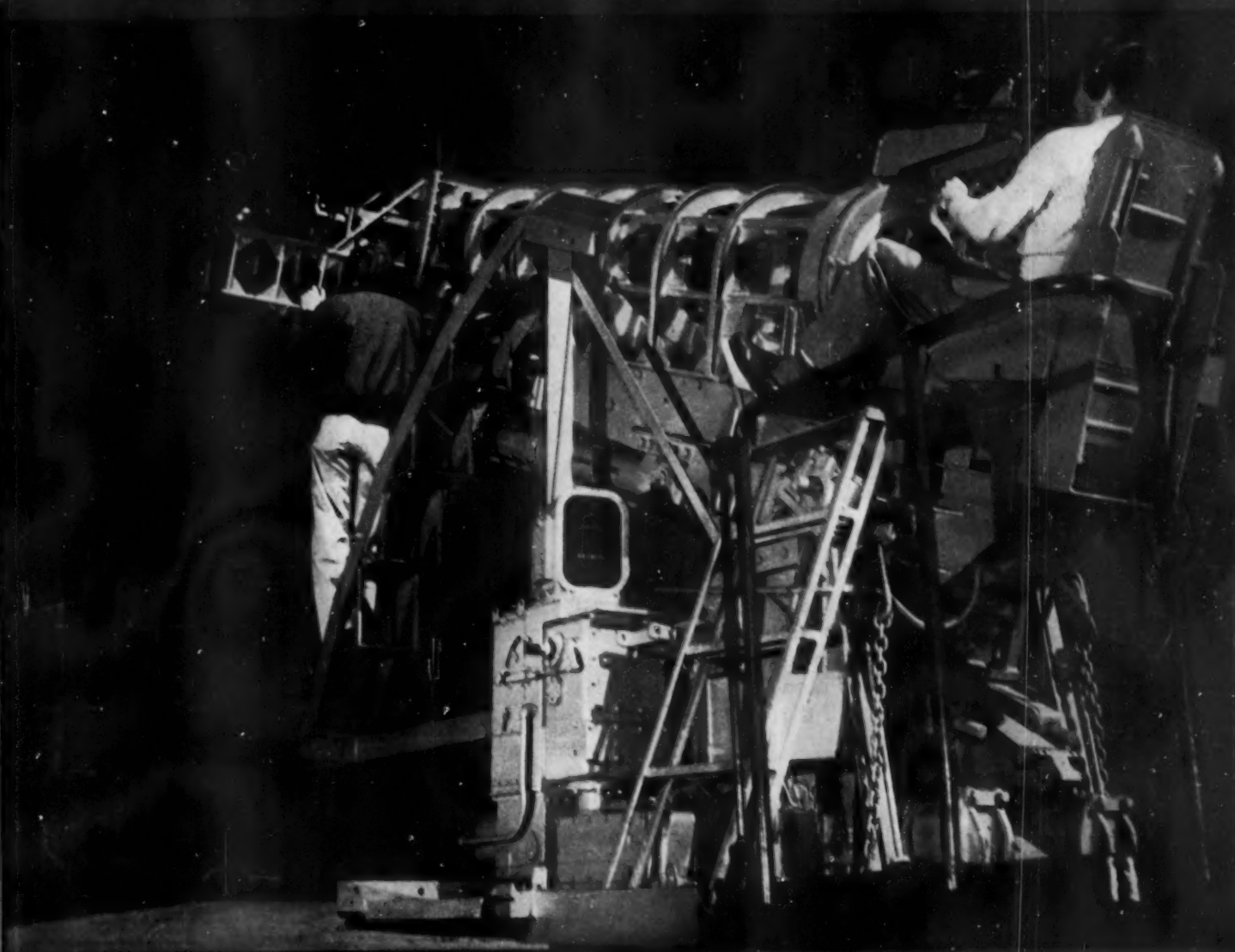
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • NOV. 15, 1947



Hybrid Tracker

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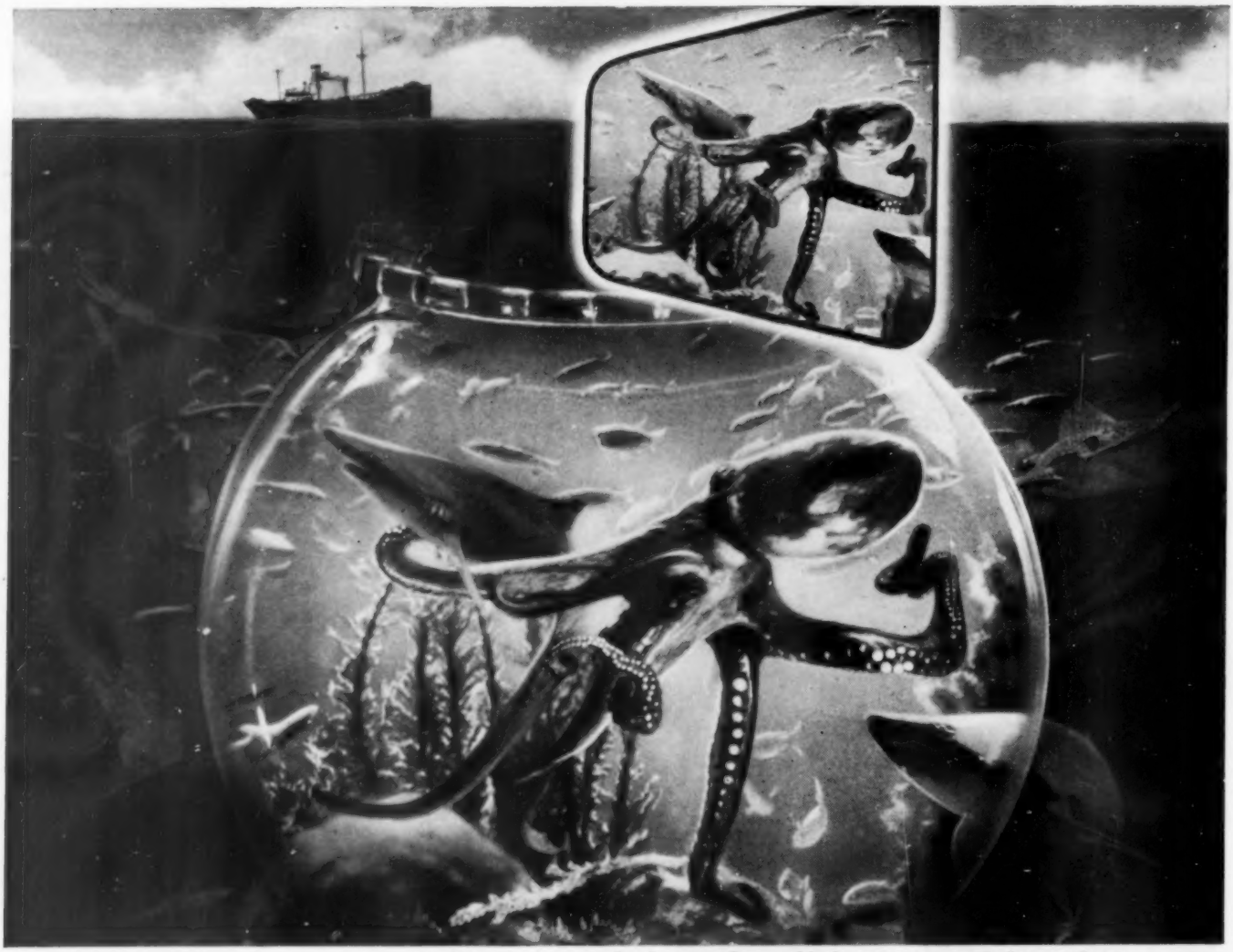
A SCIENCE SERVICE PUBLICATION



Exploration of ocean depths is made possible by RCA Image Orthicon television camera.

The ocean is a "goldfish bowl" to RCA Television!

Another "first" for RCA Laboratories, undersea television cameras equipped with the sensitive RCA Image Orthicon tube were used to study effects of the atom blast at Bikini . . .

There may come a day when fishermen will be able to drop a television eye over the side to locate schools of fish and oyster beds . . . Explorers will scan marine life and look at the ocean floor . . . Undersea wrecks will be observed from the decks of ships without endangering divers.

With the new television camera, long-hidden mysteries of the ocean depths may soon be as easy to observe as a goldfish bowl—in armchair comfort and perfect safety.

Exciting as something out of Jules Verne, this new application of television is typical of research at RCA Laboratories. Advanced scientific thinking is part of any product bearing the name RCA, or RCA Victor.

When in Radio City, New York, be sure to see the radio and electronic wonders at RCA Exhibition Hall, 36 West 49th Street. Free admission. *Radio Corporation of America, RCA Building, Radio City, New York 20.*

Through RCA Victor home television you will see the best in entertainment and sports . . . educational subjects . . . the latest news . . . and "history as it happens." If you are in a television area, ask a dealer to demonstrate the new RCA Victor home television sets.

RCA **RADIO CORPORATION of AMERICA**

GENERAL SCIENCE

Peace Through Education

UNESCO, now meeting in Mexico City, hopes to provide the framework that will repair the war damage to schools, laboratories, museums and the minds of men.

➤ IF PEACE and plenty can be brought to the world through education and science, thought and planning, the month-long meeting of UNESCO in Mexico City may be one of the world's most important international conferences. For a year, from its Paris headquarters and through committees in various countries, UNESCO has built the framework upon which knowledge and brainpower of all the world might be put to work.

Uppermost, with the thousand conferees, is the hope that war damage to schools, laboratories, museums and the minds of men may be repaired. This is a first job.

Even more important is building for the future a peaceful world civilization. This is in the thoughts of all those now struggling with the voluminous reports and the sea of words. Is there time? Can reason and knowledge spread over the world with the necessary human understanding that will neutralize the march toward war?

It would be better if Soviet representatives were present to help discuss intellectual ways of neutralizing the need for atomic bomb. Soviet Russia has not yet joined UNESCO, although the door is still wide open.

UNESCO aims to make available to everyone in the world adequate education, the fruits of science and the benefits of what is called culture—art, music, literature, drama, etc.—as part of a world campaign against ignorance, disease and poverty. The experts want everyone to have a minimum education, regardless of where they live, their race, their skin color, sex or economic or social status.

Ideas and knowledge will flow to all parts of the world unhampered if UNESCO has its way. There will be more travel between countries, particularly by young people. Tariffs, quotas and other restrictions upon scientific, educational and cultural material will be eliminated. People will be told in all corners of the world about the facts and methods of science and how they make a better world.

High on the list of things UNESCO hopes to do is to increase popular understanding of science and its social implications.

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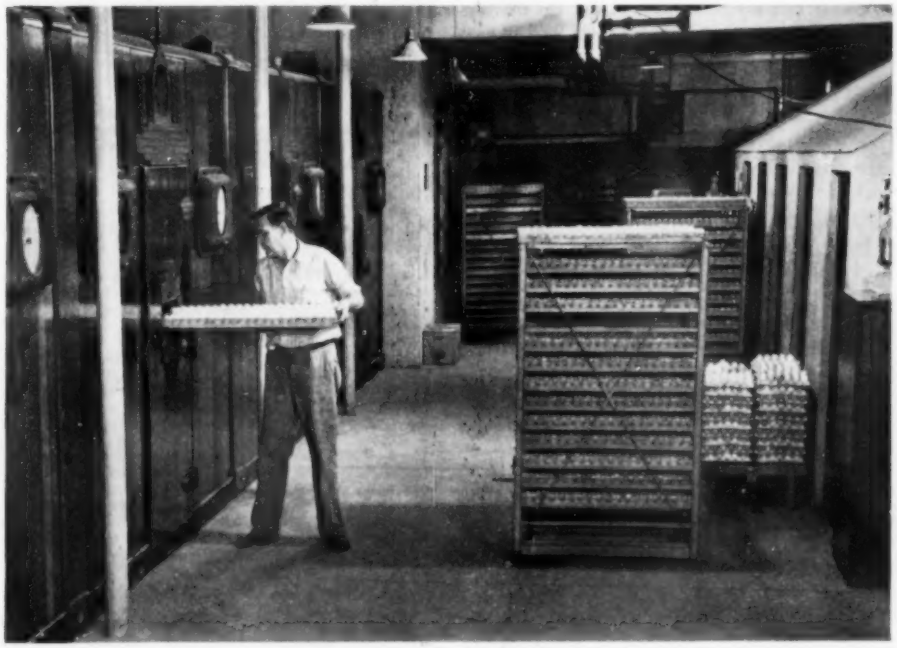

EGGS FOR VACCINES—This shows the first step toward safeguarding the nation against influenza and other virulent diseases. The eggs are placed in the huge electric incubators for from six to 11 days, depending upon the type of vaccine desired, at the Embryo Building at Larro Research Farm, General Mills, near Detroit.

MEDICINE

Army Team's Physician Tells How To Mend Fast

➤ CAPT. Herman J. Bearzy, athletic team physician at the United States Military Academy and as such the man responsible for getting Army's star players back into the game as soon as possible after any injury, tells other physicians how he does it in a report to the *Journal of the American Medical Association* (Nov. 8).

Joints, muscles and bones are the parts of the body most often injured in competitive sports, he states.

Treatment is slanted toward restoration of normal function to the injured part by stabilizing the weakened joints through increased muscle strength and tone.

The first step is to relieve the pain and swelling by cold applications. Heat is then employed to increase the circulation to the injured part and help nature with its repair work. Massage, rest and gentle manipulation of joints prevent stiffness, so that the athlete can return to his game in good condition in a few weeks.

An athlete with badly sprained ankles, feet, knees or shoulders can return to playing football in 10 to 14 days with adhesive strappings supporting his joints, but he will always need supportive bandage for all vigorous exercises.

A strained muscle or tendon while allowing for participation in sports requires certain care. The torn ligaments are repaired by scar tissue which has a poor blood supply. Therefore twice the amount of time is needed to "warm up" to prevent another rupture.

Bruises, most often occurring in thigh muscles, must be protected against repeated injury by wearing protective devices. Strenuous exercises are prescribed for dislocations. Mechanical devices such as the stationary bicycle, shoulder wheel, bar bells and chest weights are used to overdevelop the muscles after a dislocation so their extra strength will help prevent redislocation.

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MEDICINE

Drug Allergies Revealed

Six out of every 100 Americans may be allergic to penicillin and streptomycin because they have had athlete's foot or ringworm of the scalp.

➤ SIX out of every 100 Americans will be barred from the life-saving benefits of penicillin if they get pneumonia or other serious disease because they have previously had athlete's foot, ringworm of the scalp or some other fungus infection. These same six per 100 may also be unable to take streptomycin treatment.

This unfortunate result of fungus infections, bad enough in themselves, was reported by Dr. Samuel M. Peck of Mount Sinai Hospital, New York, at a fungus disease conference at the New York Academy of Sciences. The conference is the first on the subject of medical mycology ever held in the United States.

The explanation is that the fungus infections set up an allergic state so that a patient infected with any one of the common fungi may develop an allergic skin eruption to reinfection with any other fungus capable of producing the same sensitizing, or allergy-inducing, chemical.

Many of the disease-causing fungi can also produce a substance similar to penicillin. As a result, a person who never has had penicillin may be sensitive to it. When it is given as treatment, he gets an allergic reaction that may be severe enough to require stopping the penicillin.

Penicillin comes from a mold which is one of the lower fungi, and streptomycin comes from an actinomycete which is a still lower fungus. Streptomycin as now available for treatment contains factors which show cross sensitization to penicillin and to trichophytin, the sensitizing, or allergy-inducing, chemical in ringworm and athlete's foot fungi.

Recent statistics on large groups of patients show that 30% to 50% of adults show signs of having acquired sensitization to fungi and their products, Dr. Peck reported. About 75% to 90% of the general population above the age of 12 is said to have been affected at one time or another with fungus disease. There may be even more in this state in the future because of the nation-wide epidemic of ringworm of the scalp which attacks children under the age of 12. Thousands of such cases have been recorded and presumably the youngsters are becoming sensitized to other fungus chemicals including penicillin and streptomycin.

Saving feature of the situation is that not everyone who has a fungus infection necessarily gets a very high degree of sensitization.

The sensitization from fungus infection is suspected by some scientists of causing another kind of trouble. It may play a part in causing diseases of the tiny blood vessels near the surface of the body, in the fingers and toes, for example. Some of these diseases are excruciatingly painful and disabling and because they interfere with circulation may lead to gangrene.

Fungus infections complicate the tuberculosis problem, other speakers at the conference pointed out.

One such infection, called histoplasmosis, is now believed to cause calcified areas in the chest which show on X-ray pictures. In the past, such calcified areas were always taken as signs of healed tuberculosis. But tuberculin tests of thousands of persons showing these calcified areas revealed they had not been infected with TB. And a similar test with a chemical from the histoplasmosis fungus showed that many with calcified areas in the chest had had the fungus infection. As Dr. Amos Christie of Vanderbilt University pointed out, the studies show the need for revising present-day ideas about primary complex or first infection tuberculosis in relation to pulmonary calcification.

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MEDICINE

Family Study Launched To Observe Disease Impact

➤ JUNIOR'S mumps are going to become more significant as a result of a unique research program which will involve between 50 and 100 Cleveland families.

The study is launched in the hope that further knowledge will be gained about the spread of common infections, the behavior of disease in the family group, and basis for the different responses of various members of the family to disease in early life which is believed to influence future health and development.

The program will be conducted by the Elisabeth Severance Prentiss Department of Preventive Medicine in the Western Reserve School of Medicine under the direction of Dr. John H. Dingle, its head. It is to be supported by funds of the department, and grants from the Brush Foundation, the Cleveland Foundation, the Commission on Acute Respiratory Disease, Army Epidemiological Board, Department of the Army, and possibly from the S. P. Fenn Trust.

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SCIENCE NEWS LETTER
Vol. 52 **NOVEMBER 15, 1947** *No. 20*

The weekly summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C., NOrth 2255. Edited by WATSON DAVIS.

Subscriptions—$5.00 a year; two years, $8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents.

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Entered as second class matter at the post office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and the Engineering Index.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., PEnnsylvania 6-5566, and 360 N. Michigan Ave., Chicago, STate 4439.

SCIENCE SERVICE

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PHYSIOLOGY-CHEMISTRY

Warn of X-Ray Dangers

Doctors point out that permanent skin damage leading to cancer and death may follow use of X-rays or atom bomb by-products to remove hair from face and body.

➤ PERMANENT skin damage leading to cancer and death may follow use of X-rays or atom bomb by-product chemicals used to remove excessive hair from face and body, Dr. Anthony C. Cipollaro of New York and Dr. Marcus B. Einhorn of Albany, N. Y., warn. (*Journal, American Medical Association,* Oct. 11.) Their report is authorized by the A.M.A. council on physical medicine for the guidance of doctors.

More than 50 cases of cancer developing five, six and as long as 20 years after treatment with a so-called safe X-ray system for removing hair are briefly recorded in their report. Thousands more probably occurred.

"A new monster is now lurking around the corner," the two physicians state. "It is hoped that the danger can be forestalled and girls and young women can be saved from the agonizing pain suffered by their sisters two decades ago.

"Even boys and young men may be subjected to the same danger because a patent has been issued for the 'X-Ray Razor.' "

The immediate results of X-ray treatment for removing excessive hair are always good, they state. It takes months or years for the skin trouble to develop and still longer for ulcers, cancer and death to occur.

Present interest in radioactive chemicals, called radioisotopes, from the atom bomb pile might, the physicians think, lead some one to the idea of using a solution or other preparation of such a chemical for removal of excessive hair. On this particular atomic age danger they state:

"There is no question whatever in the minds of physicians that radioactive isotopes can cause permanent defluvium (sudden loss of the hair) but at the same time can so damage the skin that all the changes associated with a radiodermatitis (skin trouble), including the malignant changes, will be manifested."

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MEDICINE

New Vaccine To Be Tested

➤ WIDE-SCALE tests of a new vaccine that may stop a disease of both man and cattle and at the same time increase the quantity of milk for human consumption are getting underway in Michigan.

The vaccine, developed by Dr. I. Forest Huddleson, bacteriologist of Michigan State College, is for undulant fever. Known also as Malta fever and brucellosis, this disease attacks cows, pigs and goats. Humans get it from infected animals and particularly from unpasteurized milk from infected cows. In humans, it is a tedious, long, weakening disease with frequent relapses. It is occasionally fatal.

Some 220,000,000 pounds of milk are lost each year in Michigan alone because of the disease in dairy cows, it is estimated.

No harmful effects on breeding or milk production were caused by the vaccine in preliminary tests on cows. Almost half, 43%, of animals suspected of harboring undulant fever germs, were free of infection after being vaccinated.

The great value of the vaccine is expected to come through the possibility of preventing the spread of the disease in animals of recently infected herds. This will make it possible to eliminate infected animals, immunize the remainder and have not only a disease free herd but one which is immune to further attack from the disease.

The Michigan State College laboratory is prepared to produce the vaccine in quantities to treat 2,000 cattle daily. Distribution within the state through registered veterinarians has been authorized by the Michigan Commission of Agriculture. None will be available outside Michigan until Dr. Huddleson and associates learn more about the vaccine's effectiveness, work out distribution problems and apply for a federal license.

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NEW SPECIES—This native American yellow lily discovered in the South has been given the botanical name, Lilium iridollae, meaning "pot-o'-the-rainbow."

BOTANY

New Native American Lily Discovered in South

➤ A NEW species of native American lily, of rare golden beauty and delicate fragance, has been discovered in extreme southern Alabama and the western tip of the Florida panhandle by Mrs. Mary G. Henry of Gladwyne, Pa. The recurved segments of its nodding flowers are described as warm buff-yellow to golden yellow in color, conspicuously spotted with brown.

Mrs. Henry, a great lover of lilies, had for years hoped that her searchings afield might some day be rewarded with a really new species, like the fabled pot of gold at the end of the rainbow. When her wish came true, she decided to give the flower a botanical name meaning "pot-o'-the-rainbow". So the species has been formally christened *Lilium iridollae.*

Although native to the South, the new lily seems to be at least fairly hardy in the North. Its discoverer has grown new plants from seed, and both the bulbs and the winter rosettes have survived the cold of Pennsylvania winters.

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Plastic beads, as well as glass beads, are now used in making *artificial pearls;* the plastic type is said to hold the natural or synthetic pearl essence used as a coating better than the glass bead.

PUBLIC HEALTH

WHO is Free of Disputes

Its meetings are peaceful with no one voting or vetoing. But it has received only 17 of its necessary 26 ratifications by United Nations members.

➤ THE United Nations has one organization nobody fights about. It is the only one on which everybody agrees. Its meetings are peaceful, with everyone happy, no one voting and no one vetoing.

This unique agency is the World Health Organization. The only fly in the ointment is that WHO's constitution has not yet received its necessary 26 ratifications by United Nations members.

Its efficiency in meeting the threat of a worldwide spread of cholera from Egypt is an example of one important function this organization has. Equally if not more important, in the view of WHO leaders and other health authorities, is its potential ability to bring not only health but peace to the world.

The United Nations may be able to agree on some method of removing such immediate threats to peace as the atom bomb and germ warfare. But for lasting peace, health authorities and even some political authorities agree, the peoples of the world must have sound minds in sound bodies.

Sick minds inspired most of the horrors of the last war if not the war itself. The man in the street knows this as well as the psychologist in his laboratory, the psychiatrist in his office or clinic. Preventing sick minds in the world in the future is one of WHO's aims. Significant of this is the fact that the executive secretary of WHO's interim commission, Dr. Brock Chisholm, is a psychiatrist. Significant also are the following principles laid down by WHO's founders at the International Health Conference:

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.

"The health of all peoples is fundamental to the attainment of peace and security. . . .

"Healthy development of the child is of basic importance; the ability to live harmoniously in a changing total environment is essential to such development.

"The extension to all peoples of the benefits of medical, psychological and related knowledge is essential to the fullest attainment of health."

Readiness to achieve these aims through the World Health Organization has been shown by the following 17 United Nations members who have ratified WHO's constitution: Canada, China, Ethiopia, Haiti, Iran, Iraq, Liberia, the Netherlands, New Zealand, Norway, Saudi Arabia, Siam, Sweden, Syria, Turkey, the United Kingdom, and the Union of South Africa. Expected to ratify before the end of this year or early in 1948 are: Yugoslavia, Brazil, France, Denmark, the United States and India.

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TUSSOCK MARSH—In this typical Alaskan "Mosquito Heaven", endless stretches of shallow, quiet water, ideal for breeding purposes, are almost completely concealed by tiny, high-standing islets bearing grasses, sedges and other vegetation.

MEDICINE

Clue to Aging Is Found

Clumping of cells in the blood vessels may cause damage which contributes to growing old, mental illness and many other diseases.

➤ SLUDGED blood in the arteries and veins holds the key to solution of problems of aging, mental illness and many other diseases, it appears from a report by Drs. Melvin H. Knisely, Edward H. Bloch, Theodore S. Eliot and Louise Warner, of the Universities of Chicago, Copenhagen and Tennessee, to the journal, *Science*, (Nov. 7).

In normal, healthy young persons the blood cells move along the veins and arteries, even very tiny blood vessels, without sticking to each other or to the walls of the blood vessels. But in a wide variety of sicknesses and in shock following accidents, the cells clump and stick together, forming a sludge which moves slowly if at all and which blocks to some extent the movement of blood not yet sludged.

Sludged blood has been seen in patients with conditions ranging from hysteria, burns and common colds to cancer, scarlet fever, infantile paralysis and arthritis, or rheumatism.

There are many different kinds of blood sludges, the scientists report. How a particular sludge can damage the body depends on the chemical makeup of the material holding the blood cells together in wads and on the size, shape and other physical characteristics of the particular sludge.

Many sludges could be expected to do at least small amounts of permanent damage to the body. How all the damages by sludges add up as parts of the aging process, and how fast they can add up over short periods of years need to be studied.

Dr. Knisely's studies of patients, healthy persons and laboratory animals from which discovery of sludged blood was made have been going on over 16 years. Many of them have been made by observing the small blood vessels in the eyelids and covering of the eyeball of living animals and patients. Oblique illumination and binocular dissecting microscopes were used.

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ECOLOGY

Mosquitoes Tracked Down

Botanists work with entomologists in finding mosquito breeding grounds in Alaska and developing field methods for identifying them by airplane.

➤ BOTANISTS are playing a vital role in the campaign against the worst summer enemies our troops in Alaska have to face—mosquitoes. Entomologists spot the "wigglers" that are their infants, as they swim in still pools of water. The job of the botanists is to learn what types of vegetation grow around the mosquito nurseries, often concealing them altogether, and to develop practical field methods whereby these plant associations may be identified from a distance with a pair of binoculars, or even from high-altitude airplane photographs.

At a meeting of the Biological Society of Washington, Rev. Hugh O'Neill, professor of botany at the Catholic University of America, told of pioneer studies along this line which he and two colleagues, Rev. Artheme Dutilly, director of the Arctic Institute in Washington, and M. l'Abbe Ernest LePage of the school of agriculture at Rimouski, Quebec, conducted last summer at the invitation of the Quartermaster General. The work was done as part of an expedition in which eight government agencies, both civil and military, cooperated under the direction of Dr. Bernard V. Travis of the Bureau of Entomology and Plant Quarantine, U.S. Department of Agriculture.

Number one mosquito breeding ground, the three botanists found, is what Father O'Neill described as "tussock marsh". This is a swampy terrain dotted with innumerable little heaps of debris which stand high enough above the water level to support a few dry-land plants. Between these and the true swamp plants, such as sedges and willows, the watery nature of the terrain is well camouflaged—from man, but not from mosquitoes. There are also more open marshes, in which pools and ponds are clearly visible; these seem to constitute an earlier stage in the vegetational development.

While these marshes afford breeding-space for billions of mosquitoes, the stinging pests do not overlook even small bets. They were found breeding in water-filled cavities left by the roots of overturned trees, and even in puddles formed by the treads of caterpillar tractors.

The Alaskan mosquito, Father O'Neill said, "has the table manners of a Bengal tiger," and bores right in instantly whenever the slightest area of skin is exposed. However, the new Army insect repellant, developed during the war, is very effective in driving them off, and DDT fog knocks them out promptly. The mosquito's fellow-pirate, the black fly or no-see-um, proved less susceptible to both repellant and DDT. Something more drastic will have to be found for combating black fly.

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DECEPTIVE BEAUTY—This little lake, with a mountain in the background and attractive surroundings of plant life, may be a plague-spot for mosquitoes. They do not breed in the open water, but in the marshy areas that are concealed by parts of the surrounding vegetation.

BIOLOGY

Two Naturalists To Gather Data on Antarctic Life

➤ MORE penguins for the National Zoological Park and information for the National Museum about life in the strange "oases" in Antarctica's icy desert are the objectives of two young naturalists who will accompany the Navy's new expedition to the world's southernmost waters.

The still-unknown life forms of the mysterious ice-free areas seen from the air by members of the recent Byrd expedition will be studied on the ground by David C. Nutt. He will also make collections of marine life along the shores of Antartica and by dredging on the bottom under the ice shelf.

Mr. Nutt, a Dartmouth man who was a Navy officer during the war, has made himself a specialist in polar natural history. He has devised some new things in the way of comfortable clothing for cold regions, which he hopes to demonstrate on the present voyage.

Malcolm Davis, keeper of the bird house at the National Zoological Park, brought back a big flock of penguins when he returned from his previous Antactric trip with the first Byrd Expedition, and has been a collector of birds and animals in the tropics as well. He is particularly anxious to secure Emperor, Adelie and Gentoo penguins on this expedition, and if possible some Antarctic seals as well.

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ORDNANCE

Telescope on Gun Mount Tracks Long-Range Rockets

See Front Cover

➤ ASTRONOMERS will recognize the apparatus pictured on this week's cover of the SCIENCE NEWS LETTER as a medium-sized reflecting telescope, but the mount will seem strange. To artillerymen the mount will look all right, but what's this on it in place of its usual 90-millimeter anti-aircraft cannon? The device is one of the strangest pieces of ordnance ever built: a 16-inch astronomical telescope on a gun mount, with a 35-millimeter motion picture camera instead of the usual still-photograph plate. It is to be used at the White Sands Proving Ground to track the flight of V-2's and other long-range rockets, from a vantage-point on top of an 8,000-foot mountain 35 miles from the launching point. At present it is still being tested by scientists of the Ballistics Research Laboratories at the Aberdeen Proving Ground, Md.

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MEDICINE

Large Doses of Aspirin Cause Poisoning in Babies

➤ A WARNING that giving aspirin to babies may be dangerous appears in a report by Dr. Murray H. Bass of New York to the *Journal of the Mount Sinai Hospital* (Sept.-Oct.). Dr. Bass reported three cases of aspirin poisoning in babies under one year old. One of them died of the poisoning. While Dr. Bass' warning in the medical journal is addressed to physicians, mothers probably also need some warning of this danger.

A good many mothers are inclined to do their own doctoring of the babies or young children when they get colds or minor ailments. If they do call a doctor, they may not pay enough attention to the size of the dose of medicine he orders. Or, if the baby does not seem to get better as fast as mother thinks he should, and the medicine ordered was anything so familiar as aspirin, she may increase the dose without asking the doctor.

The cases of aspirin poisoning Dr. Bass reports were all cases in which the baby was given too big doses of aspirin. They were all cases in which the dose was prescribed by the physician. The use of aspirin has become so common that physicians, Dr. Bass says, "are apt to forget not only that certain individuals may have an idiosyncrasy for the drug, but that the dosage, even in the average individual, must be definitely controlled."

The baby who died had been given more than 10 times the correct amount of aspirin. The correct dosage, for babies, according to Dr. Bass, is about one grain per year of age every four to six hours. The tablets you buy in the drug store each contains five grains.

Deep and very rapid breathing is the commonest symptom of aspirin poisoning. Fever may be a symptom and this may lead to confusion in the diagnosis. If the baby had a cold, and his temperature went up, it might be thought he was getting pneumonia. Other symptoms are nausea and vomiting, ringing in the ears, irritability, dizziness, delirium, restlessness, convulsions and coma, or unconsciousness. The victim may turn blue, circulation may fail and he may become dehydrated.

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MEDICINE-NUTRITION

Fish Tapeworms Destroyed Only by Thorough Cooking

➤ FISH must be thoroughly cooked before eating if a kind of worm, called broad fish tapeworm, is to be prevented from invading the intestinal tract. It isn't even necessary to eat fish to get the tapeworm into the system, merely tasting it is enough, it appears from some cases just reported by Drs. David J. Sandweiss and Marcus H. Sugarman of Detroit in the *Journal of the Michigan State Medical Association,* (Oct.). The 12 women just tasted the soup or bits of fish, to see if the seasoning was right, and spit it out, not even swallowing it. But this was enough, the doctors point out, to get some of the tapeworm larvae into their mouths which they probably later swallowed with the saliva. After the larvae get into the stomach and intestinal tract they develop into adult tapeworms.

The Michigan doctors list pike, including pickerell, burbot and trout as the kinds of fish that have tapeworm larvae in them. Some authorities also suspect salmon. Fish that is properly heated, frozen, smoked or processed during commercial preparation is not dangerous because these processes, properly done, kill the tapeworm larvae. Cooking the fish at a temperature of at least 135 to 140 degrees Fahrenheit for about half an hour is advised by the Michigan doctors for killing the tapeworm larvae in fresh fish.

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IN SCIEN

GENERAL SCIENCE

Establish Science Mission In U. S. Embassy in London

➤ EXCHANGE of scientific information between the U. S. and Great Britain will be facilitated by a new Mission on Science Technology being established in the United States Embassy in London.

A small group of American engineers and scientists are being assigned to the new staff. Chief functions of the mission will be giving the British information about work in this country and gathering information on British work for distribution in the U. S.

Prof. Earl A. Evans, Jr., chairman of the department of biochemistry at the University of Chicago, will serve as first head of the U. S. mission, but personnel will be assigned for short-term periods on a rotating basis.

Fields to be covered by the new mission include organic chemistry, biochemistry, physics, engineering, biology and agronomy.

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GENERAL SCIENCE

Research Council Offers Fellowships in Science

➤ FELLOWSHIPS for research and advanced study in the natural sciences for the academic year (1948-49) are being administered by boards set up by the National Research Council. Funds for the grants come from various sources.

Postdoctoral fellowships for advanced study are being financed by grants from the Rockefeller Foundation. This program has been under way for 28 years and assisted many of today's leading scientists. Fields of study for the $2,500-per-annum fellowships include the physical and mathematical sciences, geology and geography, biological and agricultural sciences, anthropology and psychology.

Annual stipends of $2,500 to $5,000 are available for study in chemical or biological sciences under fellowships supported by Merck and Company. Fellowships in electronics with stipends ranging from $1,600 to $2,100 per annum are supported by the Radio Corporation of America in another program.

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E FIELDS

GENERAL SCIENCE

Industry and Scientists Plan High School Programs

➤ SCIENCE is stepping out of the textbook and coming alive for high school boys and girls of Rochester, N. Y., in a unique science program. Local industry and science are cooperating in a monthly series of "Excursions in Science," conducted by Rochester scientists.

First "excursion" was a program on optical science given in cooperation with Bausch and Lomb Optical Company. Next month, the youthful scientists will learn about new electron microscope techniques from scientists of the Eastman Kodak Company.

Other organizations cooperating in the high school science project include local schools, Science Clubs of America, the American Chemical Society, Engineering Society, Optical Society of America, Photographic Society of America, Burroughs-Audubon Nature Club, the Rochester Academy of Science, the Chamber of Commerce and Junior Chamber of Commerce, Rochester Park Bureau and the University of Rochester. Dr. Robert L. Roudabush of Ward's Natural Science Establishment is chairman of the committee of scientists, industrialists and educators planning the program.

Science News Letter, November 15, 1947

PHYSIOLOGY-GENETICS

Footstrain Traced to Evolutionary Deformity

➤ A HIDDEN form of a common deformity of the foot which can be traced back to man's primate ancestors is often the cause of footstrain in women, reports Dr. Frances Baker, of the University of California Medical School.

The common deformity is known to doctors as metatarsus primas varus, in which the position of the bones of the instep causes an obvious inturning of the big toe. Often this is accompanied by metatarsus varus, which is an inturning of the whole forefoot.

However, Dr. Baker time and again found footstrain in women who did not have an obvious case of an inturning big toe. Looking for the cause, largely with the help of X-rays, she found that the deformity of the bones of the instep can occur without the tell-tale inturning big toe.

Women who have either of these deformities find it difficult to wear high heels with comfort. High heels put a general strain on the whole posture, cause foot strain, calluses, bunions, and other pedal ailments.

If the secondary changes have not become marked, Dr. Baker states, the situation can be remedied when such women wear broad, flat shoes such as wedgies and sandals. The barefoot effect this gives enables the foot to go where it likes.

Dr. Baker explains the deformity as being a slight failure of evolution in some families. The inturning of the big toes was accentuated in man's primate ancestors. When man began standing upright his foot began adjusting to this position; thus the modern "normal foot" has no inturning of the big toe.

Men, of course, are subject to the same deformity, but the complaints are less because men generally wear broad, flat shoes. High heels, in themselves, Dr. Baker adds, will not necessarily cause foot strain.

The deformity can be corrected in the growing foot of a young baby, the physician states.

Of 207 female patients, Dr. Baker found 75% of foot strain was caused by one of the two conditions.

Science News Letter, November 15, 1947

WILDLIFE

Five Golden Eagles Kill One Antelope with Talons

➤ EAGLES are able to kill animals as large as antelope, Robert W. Lehti of the Colorado Game and Fish Commission reported in the *Journal of Wildlife Management* (Oct.) Although he did not see the actual kill made, he recently surprised five golden eagles about to begin their feast on the carcass of a doe antelope, so freshly dead that it was still warm, and gave off steam when he made an opening into its body cavity.

The dead animal's back showed marks as if it had been peppered with buckshot; these were talon wounds. Its tracks in blood-sprinkled snow showed that it had raced for half a mile after the first terrifying attack. Mr. Lehti calculates from this that it took the eagles one and one-half minutes to kill their quarry. Absence of death-struggle traces in the snow indicated that death had come instantly, probably when a talon penetrated the spinal cord.

Science News Letter, November 15, 1947

GENERAL SCIENCE

Scientific Film Makers Form New Organization

➤ THE world's movie producers who make films about such glamorless subjects as bacteria and the inner workings of the human body have formed a new international organization.

Films which you will not find showing at your neighborhood theater but which drew attention from the makers of scientific movies at an international meeting in Paris included a Swiss film on the operation of the electron microscope, a South African movie on bacteria and an American color film showing the growth of a lung tumor inside a living patient.

Constitution for an International Scientific Film Association was adopted at the meeting by movie makers from 20 countries. The Association is planned as an international clearing house for scientific films produced in different counties.

Science News Letter, November 15, 1947

ELECTRONICS—PHOTOGRAPHY

Math Data Can Be Kept Permanently by New Device

➤ A NEW device dubbed a "photographic memory" was revealed by the Eastman Kodak Company. It is for use in making permanent records of all figures passing at high speed through a giant electronic calculating machine being constructed by the Massachusetts Institute of Technology for the U. S. Navy.

Mathematical data, fed into the calculating machine at perhaps a thousand numbers of 12 digets each per second, are recorded on a photographic motion picture film by means of a complex photographic, electronic and optical arrangement. Records are made in tiny square spots. After the film has been developed, the information can be fed back into the calculator for further computations.

The data spots representing the digits appear first on the face of a cathode tube that resembles the screen of a television receiver. The camera makes a record of these spots by means of a moving electronic beam within the tube. In feeding the information back from the film to the computer, the data spots are projected onto photoelectric tubes. These tubes in turn, supply electrical signals, corresponding to the numbers recorded, to the calculator.

Science News Letter, November 15, 1947

ENGINEERING

Conserving Winter Fuel

The old home furnace will be in use for many more years despite the new type heating systems, therefore full heat value should be extracted from the fuel.

By A. C. MONAHAN

➤ THE old home furnace will continue in use for many years in spite of new heating systems developed and new and better smokeless furnaces which will deliver more heat from the fuel used than older types.

Some day the sun alone may heat your house, or perhaps you will gather your heat bit by bit from the little contained in the cold earth a few feet below frostline. Both schemes are successful, but it will be years before they replace the local fuel-burning furnace, whether coal, oil, gas or wood.

The domestic fire belongs to an age of abundant coal, cheap labor and carelessness about social amenities, a British scientist recently said. His plea was for turning fuels into heat energy in central plants, where modern equipment is used and scientific firing can be carried out, and delivering the heat to homes in the form of steam, hot water, gas or electricity.

New Type Heating Systems

It is a dream of the future, but a practical dream already in operation in many places. Already in the United States and elsewhere a few homes are heated by the so-called solar energy of the sun. Also a limited number of homes are heated, on the refrigerator-in-reverse principle, by gathering up small amounts of heat from the cold earth below where it freezes, or from water in deep wells, or even from the cold outside air. The majority of home-owners, however, will still be shoveling coal this winter.

America has plenty of coal for centuries, and enough other fuels for many years, but their costs are rapidly mounting. Every item entering into the cost of mining and handling coal now costs more than formerly. Also, the supply of this fuel for domestic uses is not too great and probably will not be while great quantities are being shipped to help rebuild Europe's economy. The same situation is true of other fuels.

The answer in America is not a lack of sufficient heat in homes to insure comfort, but it is in getting the full heating value of the fuel used. It is a matter that rests with the individual house user. It means not only getting the most heat out of the fuel, but also preventing heat losses in the furnace itself or from the rooms of the building.

The way that most home furnaces are operated there are several heat losses. In ashes removed from them there is often much unconsumed material, because of improper firing methods. Much possible heat escapes up the chimney from the furnace either in the form of hot gases whose heat was not picked up by the furnace flues in which water or air is circulated, or of combustible gases not burned because of insufficient air to cause complete combustion.

Art to Proper Firing

As a rule the furnace is not to blame. The fireman is. There is an art and a science to proper firing. Some learn it by a trial and error method. A better plan is for the fireman to read instructions, copies of which can be obtained free from such organizations as the U. S. Bureau of Mines, the Department of Agriculture, state colleges of agriculture and engineering, or national associations of fuel producers.

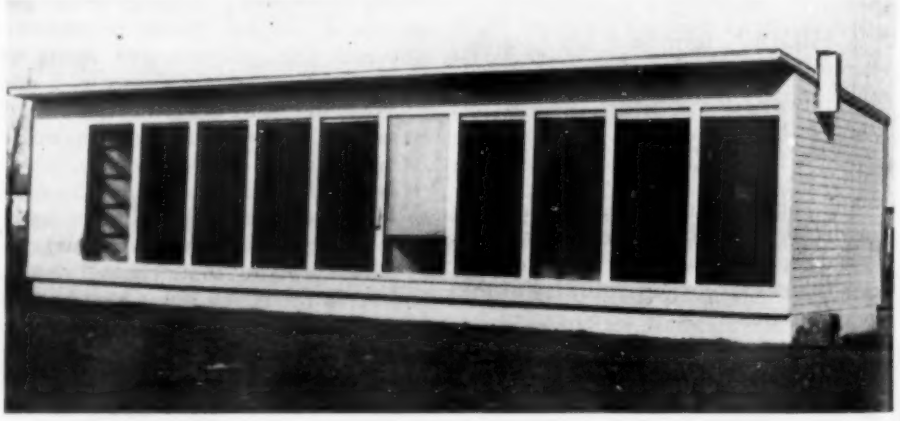
Soot and hard carbon deposits on the flues inside furnaces, being good insulation, prevent the passage of heat to the water or air used to circulate the heat to the house. They can cut the efficiency of heating as much as 30%. Any householder can keep flues clean. It means only a few hours work distributed throughout the season, using the wire brush furnished with a furnace for this particular job.

Factors in Heat Loss

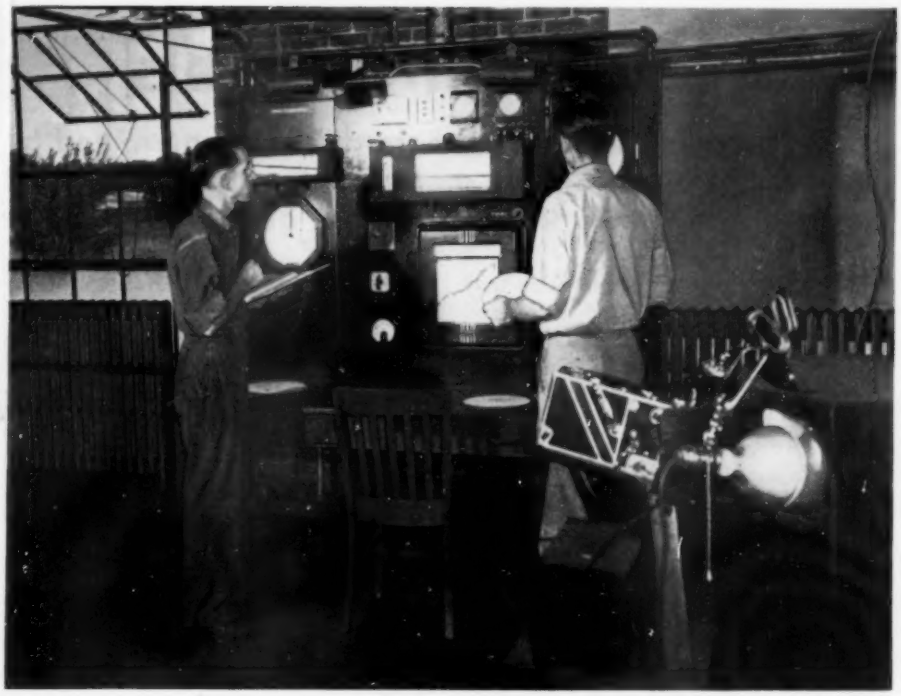
Heat losses from a room are due to poor insulation, coupled with air exchange through visible or invisible cracks and crevices. The cracks and crevices are easily closed, with rags if necessary, but better with one of the special plastic putty-like materials now available for the purpose. They occur around window and door frames, under eaves and between the ends of floor joists.

Double sash on all windows, and special storm doors, can save up to 30% of the heat ordinarily wasted from rooms. The inside of a window pane feels cold to the touch when only a single sash is used. With the double sash it is about the temperature of the room. Insulation within walls and floors also saves much heat.

Heating homes by electricity from central power stations has much to commend it but is costly at the ordinary price of the electrical energy. Heating by gas is clean, relatively inexpensive where gas rates are low, and is generally satisfactory. At present there is much interest in getting heat from the cold earth and from the hot sun. Both



SOLAR HEATING—Experiments are conducted inside this structure in separated compartments where various methods of storing the sun's heat are tested at the Massachusetts Institute of Technology



SMOKELESS FURNACE—Scientists of the University of Illinois are checking its efficiency with technical laboratory instruments. With the same amount of coal it gives an estimated 50% more heat than a standard furnace.

are promising. One problem in using solar energy is the storage of the heat. This may soon be solved.

Solar Heating Experiments

A number of American technical colleges and universities are experimenting with solar heating. Among these are the Massachusetts Institute of Technology, Illinois Institute of Technology, Purdue University and the University of Colorado. All have experimental houses, and all have succeeded with satisfactory heating in winter periods of sunshiny weather. None of them, however, have solved the problem for economical storage of daytime heat for night and stormy days. None have yet developed an inexpensive installation making the cost of all-season heating less than by the use of coal. The future, however, is promising.

One principle employed in some of these experimental structures is that used in greenhouses. A glass roof covers the regular roofing with an air space between through which air can circulate. Within this space, in the Colorado experiment, glass plates one-third blackened are laid like shingles. The black absorbs the heat, which is then passed to the circulating air and through the house-heating air ducts.

In one MIT house, a blackened copper sheet under three air-spaced glass plates covered much of the building roof. Copper tubes, soldered to the copper plates, circulated water to a giant storage tank in the basement.

Another type of building has an all-glass wall on its sunny side. Double sash is used. Cement floors within absorb much of the heat and hold it for night use. Over the windows of these houses are projecting roofs that cut out the direct rays of the sun during the summer when the sun is high, and admit them during the winter months when the sun is low.

The focus on the solar heating problem at the Massachusetts Institute of Technology is directed toward economical storage of the heat collected. Water has been the most widely used storage material, but iron, concrete, marble and other materials have been successfully employed. Now, Dr. Maria Telkes of the MIT staff has found something that seems superior.

It is a chemical stored in sealed tanks which is a solid at ordinary temperatures but becomes a liquid at high summer weather. It takes a lot of heat to convert it from a solid to a liquid. This is what was once called latent heat but now known as the heat-of-fusion. It changes the physical condition but does not change the temperature.

One chemical found suitable for this purpose is Glauber's salt, a form of sodium sulfate. Its melting point is about 90 degrees Fahrenheit. When its stored heat is needed, air is circulated around the containers. The chemical begins to solidify, at the same time giving up its heat-of-fusion to the air.

The heat accumulation and depletion may be repeated indefinitely because the chemical is within a sealed can and never has to be replaced. The chemical compound can store at least seven times more heat than an equal volume of water. The tanks to hold it cost about the same as tanks for water.

Science News Letter, November 15, 1947

GENERAL SCIENCE

Finnish Institution Needs U. S. Scientific Books

➤ AN appeal for scientific and technical books and periodicals to rebuild the bomb-destroyed library of a Finnish institution has been made by Arthur E. Morgan, former president of Antioch College, Yellow Springs, Ohio, who recently returned from a trip to Finland.

Mr. Morgan reported that loss of its technical laboratory is handicapping recovery of Finland's technical institute, Teknillinen Korkeakoulu. Dr. Martti Levon, director of the institute, told Mr. Morgan that scientific and technical publications from the U. S. were needed to replace those lost in the war.

Gifts for the institute can be shipped to the Legation of Finland in Washington, D. C., for further shipment abroad, Mr. Morgan suggested.

Science News Letter, November 15, 1947

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Do You Know?

Producers of *turkey eggs* for hatching have found that artificial light in the turkey houses during the late evenings and early mornings starting the first of February results in eggs a month earlier than otherwise.

One motion picture theater, at least, has *paintings* on its walls done in fluorescent water colors; their glow does not interfere with the visibility of the motion picture on the screen but does provide aisle lighting.

Tough kraft *paper* into which 2% of melamine resin has been introduced keeps about 40% of its bursting strength when water-soaked instead of the near-zero strength without the chemical.

The only area in the United States where *flax* is grown extensively primarily for its fiber is in the Northwest; the large quantities grown in other states are primarily for the seed and oil.

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PUBLIC HEALTH

Diseases from Animals

Man is victim to two more diseases transmitted by animals. Dogs may infect man with food poisoning and elephant's tusks may transmit anthrax germs.

ADD to the list of diseases man may get from animals: 1. food poisoning and intestinal upsets, from dogs; 2. anthrax, from elephant tusks. Reports on both were presented at the meeting of the American Public Health Association in Atlantic City.

An employee of a piano-key industry died of anthrax which was not suspected till after his death, Drs. Roy M. Seideman and Kenneth M. Wheeler, of the Connecticut State Department of Health, reported.

The victim's job involved the sawing of elephant tusks, from which piano keys were to be made. The tusks came from East and West Africa. Anthrax germs were found in washings of tusk scraps.

This is the first case of human anthrax infection traced to elephants or their tusks, so far as the scientists could find from searching scientific literature for reports of others and from inquiry of the U. S. Public Health Service.

Workers and plant management in industries using raw ivory or elephant tusks, they warn, should be alert to the danger of anthrax. Skin sores and infections should get prompt medical attention and sanitary precautions should be observed. These are the only measures for controlling the danger until some method can be developed for sterilizing raw ivory without altering its physical quality.

The ivory may get the anthrax germs because the elephant had the disease, or during transport, either by native handling or by shipment with other animal products carrying the germs.

The danger of man getting food poisoning from his dogs was reported by Dr. Arthur H. Wolff, U. S. Public Health Service veterinarian, and Norman D. Henderson and Miss Grace L. McCallum of the Michigan Department of Health.

Examination of the intestinal wastes of 100 dogs showed that 18 of them were excreting 16 different types of Salmonella, germs which may cause poisoning in man.

Three outbreaks of food poisoning due to Salmonella germs, in which dogs were incriminated as the source of the infection in humans, have been reported by other scientists. The Michigan group started their investigations as a result of these reports, to learn to what extent dogs may carry these food poisoning germs.

The studies showed that dogs carry these germs much oftener than has been supposed, and that the germs may have some association with distemper or intestinal inflammation in dogs or both. Further studies are under way to determine the exact significance of the findings to the health of both dogs and man.

Dog Vaccination Effective

Clear-cut evidence of the fact that vaccinating dogs against rabies controls this deadly disease was reported by Drs. Robert F. Korns and A. Zeissig of the New York State Health Department.

Rabies in animals in upstate New York increased nearly ten-fold during the period 1944-1947. From a level of approximately 100 cases per year during the previous 10-year period, it rose to 313 cases in 1944, 662 in 1945 and reached a peak of 1,175 in 1946. An unusual feature was the fact that wild foxes got the disease during this animal epidemic. The foxes in turn gave it to cattle. In 1946 there were 308 reported cases of rabies in foxes and 440 in cattle.

Countywide dog vaccination in 24 counties during the past two years, with revaccination in 12 counties, stopped the epidemic among dogs. While there were 300 rabid dogs in the upstate area during the first nine months of 1946, there were only 40 for the same period of 1947, although there were 218 rabid foxes and 173 rabid cattle during the same period.

In 10 central New York counties, the disease has almost disappeared in the dogs, though cattle and fox rabies continues. All of these 10 counties have vaccinated over 70% of their enumerated dogs. The rabies-attack rate in vaccinated dogs is now only one-eighteenth that in non-vaccinated dogs.

ENTOMOLOGY-PUBLIC HEALTH

DDT War on African Flies

Vast new areas may be opened for living and food growing if the new insecticide can conquer the responsible agent of the dread African sleeping sickness.

➤ PILOT plant experiments that may bring more food and more living space for the hungry, fast-growing population of the world are attracting the interest of scientists at the U. S. Department of Agriculture.

The experiments are testing DDT as a conqueror of the tsetse fly and the dreaded disease, African sleeping sickness, or trypanosomiasis. If successful, they may open for food production and settlement vast, now uninhabitable areas of Africa.

Tsetse flies spread the germs of this wasting disease that dulls the mind and slows physical activity, causes protracted drowsiness and, if not treated, kills. It is an entirely different ailment from the virus-caused disease we call sleeping sickness in this country and which has the medical name, encephalitis.

The germs of the African sleeping sickness are blood parasites that feed on the blood of wild and domestic animals as well as man. The wild, or game, animals do not get sick from the germs in their blood, however. Instead they serve as a reservoir of germs for the flies to spread.

Interferes with Development

The disease has dominated and seriously interfered with the development of about one-fourth of the continent of Africa, authorities state.

The number of disease-carrying tsetse flies in one area of bush country in Zululand dropped significantly following airplane spraying of DDT, Dr. P. J. du Toit, director of veterinary services, Union of South Africa, reports.

The test area was 100 square miles. Flying across wind at 120 miles per hour at a height of about 50 feet, South African Air Force pilots laid down a dense white smoke of DDT across a swath 70 yards wide. About 50 acres per minute were sprayed. Up to six aircraft were used at a time, succeeding ones following the leader at intervals and taking alignment at the edge of the visible spray left in front.

Cost of spraying the 100 square miles was about 40 cents an acre for the DDT and 20 cents per acre for the aircraft services. The area was treated this way six times. Elaborate tests were made of the actual spread of the DDT in the bush country. Where there were breaks in the ground because of small ravines, the spread was uneven. DDT grenades placed by hand were used to supplement the spraying at such places. Previous trials of entirely hand-operated spraying from the ground, however, had proved unsuitable because there was not enough penetration of the foliage. The time and number of workers needed also were so great as to make the hand ground spraying impractical.

Survival of Flies Small

The flies were not entirely wiped out by the combined ground and air spraying, but the numbers that survived were exceedingly small. The tsetse fly reproduces slowly and there have been instances of it disappearing from a heavily infested area when its animal food supply was greatly reduced. So presumably there is hope that if DDT can reduce the number of flies drastically, the remaining ones may gradually die out.

This Zululand spraying was a pilot experiment, and an enormous amount of work will be needed before the relative value of this or any other method of control can be assessed, Dr. du Toit stated in a report to the London School of Hygiene and Tropical Medicine.

The experiment has, he said, "provided certain definite and significant results."

"Where the fly was a nuisance to individuals working in or passing through the area, they are now rarely noticed.

"Sufficient has been done in Africa to justify a tremendously increased scale of operations against the tsetse fly. The amount of money spent on research on methods of controlling the fly since Africa has been developed by the white race has been pitifully small in comparison with the harm it causes and the extent to which it limits the utilization of land potentially valuable for husbandry and other purposes. Here is a problem which requires costly and large-scale research. If very large tracts could be made available as a result of experimentation, the money would be well spent.

"It is of course to be understood," Dr. du Toit added, "that hand in hand with successful tsetse fly control in tropical Africa measures for dealing with prevalent social and agricultural systems that lead to over-stocking and consequent soil erosion would require attention. Not one of the least important problems would be the provision of adequate water supplies for livestock and efficient use of such water."

Details of the experiment have just reached scientists through the English scientific journal, *Nature* (Oct. 11). Other, unpublished reports of the work have come directly to the U. S. Department of Agriculture from government agriculture officials in England, and they have also heard that the Belgians were undertaking similar DDT anti-tsetse fly work in the Belgian Congo.

Science News Letter, November 15, 1947

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ENTOMOLOGY

NATURE RAMBLINGS

by Frank Thone

Tax on Food

➤ SHARING our food with the needy of other lands will be warmly debated in the coming weeks. But we are already sharing our food with other hungry mouths, to the extent of more than 10% of every year's crop, and getting not so much as a "thank you" in return. Worse still, we eat at second table, only after these other uninvited guests have helped themselves; we take what insects choose to leave us.

The insect world's tax on American food is discussed in some detail in a chapter of a new book, *Insects and Human Welfare*, by Dr. Charles T. Brues, veteran Harvard entomologist, published in Cambridge by Harvard University Press.

Taking an average of ten pre-war years, Dr. Brues estimates that insects annually devoured or spoiled $231,150,000 worth of the $2,890,000,000 cereal crop, $92,700,000 worth of the $1,043,000,000 total of truck and garden crops, $125,000,000 worth out of a total of $2,500,000,000 in animal products, with proportionate losses to other crops adding up to a grand total of $998,000,000 damage to food crops worth, altogether, $7,798,000,000.

The damage that insects do to food and other crops is more readily understood when Dr. Brues brings in his chart of the feeding habits of all known species of insects. Of the 800,000 or so species, nearly half feed directly on plant tissues. Even though the majority of these live on plants of no economic significance, there are enough of highly numerous and very hungry species to account for all the listed losses.

Partly offsetting these harmful insects are other species that have to be counted as man's unconscious allies, such as the tiny wasps and flies that lay their eggs on the eggs or grubs of larger insects and so cause their destruction, or the lady-bird beetles with their tiger-like appetites for the flesh of six-legged prey. However, biological controls of this kind can only mitigate the damage, not stop it completely or even minimize it.

As one means of defense against the swarming, hungry hordes, Dr. Brues suggests seeking crop plants less liable to insect visitation; for example, the possible substitution of the little-bothered root crops, dasheen and Jerusalem artichoke, for the pest-ridden potato.

Science News Letter, November 15, 1947

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MEDICINE

TB Treatment on Trial

➤ A NEW chemical treatment of tuberculosis is now under trial by the Mayo Clinic and Minnesota physicians who first showed the possibilities of streptomycin in using it with B.

The chemical is para-aminosalicylic acid, a distant relative of aspirin. It is called PAS for short. For the past few months trials of it have been under way under the supervision of Dr. David Carr of the Mayo Clinic and Dr. Karl Pfuetze, of Mineral Springs Sanatorium, Dr. H. Corwin Hinshaw reported at a staff meeting of the Mayo Clinic.

Tests of the chemical on guinea pigs with tuberculosis were reported at the same time by Drs. William H. Feldman, Alfred G. Karlson and Dr. Hinshaw.

The new drug is not as powerful as streptomycin, "if it has any value at all," Dr. Hinshaw stated in reference to the work with the patients.

In spite of this rather unfavorable impression, the doctors apparently consider the drug worth further trial. It has the obvious advantages of being a drug that is produced synthetically, instead of having to be extracted from a mold, and of being one that can be swallowed like a pill instead of being injected.

It may prove valuable in combination with streptomycin. Tests of this in guinea pigs are being made. Given by itself to guinea pigs with tuberculosis, PAS had a marked effect in stopping the disease. Only eight of 17 treated animals died of TB, compared with 16 out of 20 untreated ones.

The possibility of PAS becoming a remedy for tuberculosis was discovered by a Swedish scientist, Dr. Jorgen Lehmann. Dr. Guy P. Youmans of Northwestern University Medical School in Chicago confirmed the Swedish results in laboratory tests with mice. Dr. Youmans has also been testing the combination of PAS with streptomycin in mice with tuberculosis. The results were "impressive," he told the Mayo group.

Whether streptomycin, PAS or some still undiscovered and more powerful drug becomes a real cure for the white plague, "the virtual conquest of tuberculosis in America in our lifetime" is seen by Dr. Hinshaw as likely.

He bases this hopeful view on the rapid progress in tuberculosis research, increased financial support for it from the federal government and the American Trudeau Society, improved methods of diagnosis and treatment and the "greatly improved public attitude" which are all developments of the past few years.

Science News Letter, November 15, 1947

Books of the Week

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BOMBS AT BIKINI—The Official Report of Operation Crossroads—W. A. Shurcliff, under the direction of the Commander, Joint Task Force One—*Wise,* 212 p., illus., $3.50. Counterpart to OPERATION CROSSROADS, this work presents the technical history of the Bikini expedition, and summarizes all data which can be released to the public, including an account of the development of the expedition and of the preliminary preparations for it.

THE CATS OF WILDCAT HILL—Charis Wilson and Edward Weston—*Duell, Sloan,* 90 p., illus., $3.75. A score or more of cats—their lives, their feelings, their antics—told by the people who befriended them.

CHEMISTRY MADE EASY—Louis T. Masson—*School Science Press,* 416 p., illus., $1.79. This third volume of the series, Science Made Easy, presents chemistry in terms readily understandable by the high school student.

COMMITTEE OF EUROPEAN ECONOMIC CO-OPERATION—Vol. I: General report—September 21, 1947—Department of State Publication 2930, European Series 28—*Govt. Printing,* 138 p., paper, 30 cents. Program for recovery, drawn up by 16 European nations acting in concert, and including statements of production, requirements, and future plans agreed upon by the participating countries.

THE EDMONTON, KENTUCKY, METEORITE—E. P. Henderson and S. H. Perry—*Smithsonian Inst.,* 4 p., illus., paper, 20 cents. Smithsonian Misc. Coll. Vol. 107, No. 13.

GRASSY ISLAND—Frederick Johnson and Hugh M. Raup—*Robert S. Peabody Found. for Archaeology.* Vol. I, No. II, 68 p., illus., paper, $1.00. Archaeological investigations of an Indian camp-site in Massachusetts which may date back to the time of exploration of America by the Vikings.

HENRY FORD—Cy Caldwell—*Messner,* 246 p., illus., $2.75. A biography of this great industrial pioneer and the story of how his inventions modernized transportation, industry, and world economcs.

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SAINT CROIX: The Sentinel River—Guy Murchie—*Duell, Sloan,* 281 p., illus., $3.50. Well-documented and illustrated, this book recounts the history of the St. Croix river from the time of its earliest discovery and settlement to the present.

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Science News Letter, November 15, 1947

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⚙ *ICE-CUBE TRAY for the refrigerator is made of a synthetic rubber-like plastic in separated compartments joined only at the rim. When the tray is twisted the cubes pop out with only slight pressure because the ice does not stick to the wax-like surface of the plastic.*

Science News Letter, November 15, 1947

⚙ *POCKET SCALES for fishermen is an L-shaped device about two inches long with a loop for the forefinger in the angle of the "L." It has a hook below for the attachment of a fish and can weigh up to eight pounds. The device also contains a two-foot tape to measure the length of the catch.*

Science News Letter, November 15, 1947

⚙ *GAS METER, to study gas flow in commercial pipelines, is based on a strain-gauge whose electrical resistance varies when it is stretched or squeezed. Attached to it, but inside the pipe on a steel spring, is a small aluminum float which sways with the changes in gas movement.*

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⚙ *TELEPHONE HANDSET, recently patented, has an automatic locking device to hold it on its ordinary support when not in use. When grasped by the hand, pressure of the thumb releases the handset, permitting it to be removed from the support.*

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⚙ *WATER AERATOR delivers foaming water filled with air that will not splash as it hits a pane of glass, as shown in the picture. A perforated brass disk inside, and a series of screens, convert the water into tiny particles mixed with air. It can be used on a faucet or the end of a hose.*

Science News Letter, November 15, 1947

⚙ *PIPE BOWL cleaner for the smoker has a number of blades with cutting edges that are easily rotated around a central shaft placed in the center of the bowl. This device, just patented, scrapes the inside of the pipe free of all foreign materials.*

Science News Letter, November 15, 1947

⚙ *RADIO attachment is an automatic device to bring in radio programs wanted from any station any time of the day. It will also "pipe" programs over certain loud-speakers and not over others, such as children's programs into their playrooms, and can switch in a television set on schedule.*

Science News Letter, November 15, 1947

⚙ *HAND-GRIP, a plastic device for holding the fingers in position while manicuring, has a hole for the thumb and grooves for the fingers which keep them separated and steady. Nail polish can be applied without smudge or smear.*

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Question Box

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Photographs: Cover, Ballistic Research Laboratories; p. 307, United States Radiator Corporation; p. 309, Prof. E. T. Wherry, U. of Penn.; p. 310, 311, Rev. Hugh O'Neill; p. 315, Bituminous Coal Ind.

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